

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: KISTLER, Leonard

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ART UNIT: 1734

FILED: August 27, 2003

EXAMINER: Koch, G.R.

TITLE: DEVICE FOR APPLYING A COATING AGENT

AMENDMENT "A"

Director of the U.S. Patent
and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action of December 15, 2004, a response being due by March 15, 2005, please consider the following remarks:

REMARKS

Upon entry of the present response, previous Claims 17 - 32 have been canceled and new Claims 33 - 46 substituted therefor. Reconsideration of the rejections, in light of the foregoing amendments and present remarks, is respectfully requested. The present amendments has been entered to the distinguishing the present invention from the prior art.

In the Official Action, it was indicated that Claims 17 - 19, 23 and 28 - 30 were rejected as being anticipated by the Falck patent. Claims 17, 18 and 29 - 30 were rejected as being anticipated by the Estelle patent. Claims 31 and 32 were rejected as being obvious over the Falck patent.

Claims 19 - 21 were rejected as being obvious over the Estelle '891 patent in view of the of the Estelle '325 patent. Claims 22 and 24 - 25 were rejected as being obvious over the Falck patent in view of the Bleck patent. Claims 26 and 27 were rejected as being obvious over either the Falck patent or the Estelle'891 patent in view of the Price patent. The Examiner also had extensive formality objections with respect to the original claim language.

As an overview to the present reply, Applicant has extensively amended the previous claim language in the form of new Claims 33 - 46. New Claims 33 - 46 incorporate the original limitations, but express such original limitations in a more proper U.S. format, including proper antecedent bases and proper structural interrelationships throughout. Any indefinite terminology found in the original claims has been corrected herein. Importantly, where functional language is recited in the original claims, proper "means-plus-function" terminology is incorporated herein.

In new independent Claim 33, Applicant has incorporated the limitations of original independent Claim 17, along with the limitations of dependent Claims 18 and 26, along with certain of the limitations from original Claim 27. As such, previous Claims 18 and 26, along with a portion of previous Claim 27, have been removed herefrom.

The prior art Falck patent teaches a strip coating apparatus which uses a felt coating discharger. The description of this felt coating discharger is found in column 5, line 57 through column 6, line 21 of the Falck patent. The liquid is not sprayed onto the substrate to be coated, but rather discharged into a piece of felt. The piece of felt is in contact with the substrate and applies the liquid to the substrate surface in a manner similar to the application of water to a surface with a sponge for the purpose of cleaning. The contact between the felt and the substrate is described in the Falck patent in column 7, lines 14 - 25. It is clear that the felt stores a certain amount of liquid

and a throttling or interruption of the liquid supply to the felt will therefore not lead to an instantaneous throttling or interruption of the coating process on the substrate surface. The effect of an increase in the liquid supply rate on the coating process will be delayed by the felt as well.

In the present invention, it emphasized by the specification of the spray valve in new independent Claim 33 that a coating thickness profile is not achieved by using such a felt coater. Such a felt coater can only be withdrawn completely from the substrate surface for the purpose of protecting it from damage when encountering a splice joint (as described in column 7, lines 14 - 25, of the Falck patent). The present invention provides for continuous instantaneous adjustment of the deposition rate of liquid on the surface of the substrate. As such, Applicant respectfully contends that the Falck patent does not anticipate the subject matter of new independent Claim 33.

The Estelle '891 describes a control system for a metering pump providing pressurized fluid at a dispensing gun. Although the dispensing gun comprises a valve, this valve is not used for continuous adjustment of the fluid supply to the substrate to be coated, but for either opening or shutting down the fluid supply completely. This process is described in column 5, lines 22 - 43, of the Estelle '891 patent. In the Estelle '891 patent, a continuous adjustment of the fluid supply is provided by controlling the speed of the motor driving the pump (see column 5, lines 44 - 62), which feeds the coating fluid to the valve. This control concept is markedly different from that of the present invention. The present invention is based on controlling the position of a closing mechanism of the valve.

Relative to the creation of a coating thickness profile, the portion of Estelle '891 described by the Examiner on page 6, lines 1 - 4, of the Official Action explicitly calls for the flow rate of the fluid from the dispensing gun to be held as constant as possible (see column 1, lines 36 - 39). In fact,

the entire purpose of the Estelle '891 patent is the avoidance of variations in fluid pressure during variations of conveyor speed. Such variations were found to lead to variations in coating thickness, as is described in column 2 with respect to Figure 5A. This clearly teaches away from any variation of coating thickness, rather than towards the creation of a profile. This obviously implies such variations. As such, Applicant respectfully contends that the Estelle '891 does not anticipate the subject matter of new independent Claim 33.

The prior art Price patent describes an apparatus for dispensing fluid material onto a workpiece from a nozzle in which the flow rate of the fluid is controlled by a metering valve. The fluid is not sprayed onto the workpiece, but deposited in the form of a bead (see column 3, lines 1 - 5 and column 55, lines 5 - 9). Therefore, it is implausible that a person skilled in the art would consider the Price patent at all when intending to improve upon an apparatus for the coating of substrates being fed to a deep drawing press. Moreover, similar to the Estelle '891, the Price patent aims at achieving a constant thickness of the fluid deposited on the workpiece, which is to be maintained even during variations of the relative speed between the dispensing apparatus and the workpiece (see column 3, lines 6 - 11). It is not directed to creating a coating profile with varying thickness. As such, the Price teaches away from the concept of the present invention as claimed in independent Claim 33.

One having ordinary skill in the art would not be inclined to combine the teachings of the Falck and Price patent since the instantaneous adjustment of the flow rate provided by the control system of the Price device would be rendered ineffectual by the fluid storage in the felt being in the Falck device. The Price device would have to inject the fluid in a hypothetical combination of both

systems. As such, Applicant respectfully contends that the present invention, as defined by independent Claim 33 is not obvious in view of the combination of Falck and Price patents.

It is to be noted that the Estelle '891 patent was published after the priority date of the present application. Additionally, both the Estelle '891 patent and Price patent teach strict avoidance of any variation in the thickness of the fluid deposited on the substrate. This is directly contrary to the goals of the present invention, as defined by independent Claim 33 herein.

The replacement of the on/off valve of Estelle '891 with the servo valve of Price patent would produce incompatibility between such two very different control systems. The illustration of such differences is found in Figure 1 of the Estelle '891 and in Figure 2 of the Price patent. Application's attorney finds it extremely difficult how one having ordinary skill in the art would be able to combine these teachings in any way, other than through a hindsight analysis.

Importantly, the Price patent teaches an electropneumatic valve comprising a needle. The axial position of the needle determines the open cross section of the nozzle. This axial position is attached to a piston. The piston can be moved axially by air pressure which, in turn, is regulated by means of an electromagnetic actuator (see column 5, line 16 through column 6, line 34). In contrast to this, the present invention teaches the direct electromagnetic actuation of the needle valve. This is a far more simple and cost-effective solution for the control of the needle valve. Applicant respectfully contends that this combination of Estelle '891 patent and the Price patent, even if possible, would not lead one having ordinary skill to the construction of the present invention, as defined by independent Claim 33.

Applicant notes that herein, dependent Claims 34 - 40 correspond, respectively, to the limitations of previous dependent Claims 18 - 24, but express such limitations in a more proper U.S.

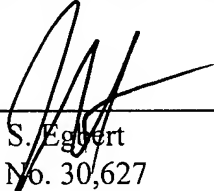
format. Dependent Claim 41 corresponds to the limitations, in part, of previous dependent Claim 27. Dependent Claims 42 - 46 correspond, respectively, to the limitations of previous dependent Claims 28 - 32.

Based upon the foregoing analysis, Applicant contends that independent Claim 33 is now in proper condition for allowance. Additionally, those claims which are dependent upon this independent claim should also be in condition for allowance. Reconsideration of the rejections is requested and allowance of the claims at an early date is earnestly solicited. Since no additional claims have been added above those originally paid for, no additional fee is required.

Respectfully submitted,

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Date



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